

**REMARKS**

Upon entry of this amendment, claims 62, 67, 68, 70-72, 74, 75 and 81 are all the claims pending in the application. Claims 63-66, 69, 73 and 76-80 are canceled by this amendment. Claim 81 is added as a new claim. No new matter has been added.

Applicants note that a number of editorial amendments have been made to the specification for grammatical and general readability purposes. No new matter has been added.

Regarding the Information Disclosure Statement filed on January 6, 2004, Applicants note that the Examiner did not initial next to the single reference listed in the "Other Document(s)" section of the corresponding PTO-1449 form. For the Examiner's convenience, Applicants are enclosing a copy of above-noted PTO-1449 form, and kindly request that the Examiner consider the reference listed in the "Other Document(s)" section and return the initialed and signed form with the next Office paper.

**I. Claim Rejections under 35 U.S.C. § 103(a)**

The Examiner has rejected claims 62-80 under 35 U.S.C. § 103(a) as being unpatentable over Watanabe (U.S. 5,896,211) in view of Naito et al. (U.S. 5,568,305).

Claim 62, as amended, recites the features of a first optical/electrical converting portion operable to convert the combined optical signal outputted from the interference portion into an electrical signal; and a second optical/electrical converting portion operable to convert the second optical-modulated signal outputted from the optical branch portion into an electrical signal. Applicants respectfully submit that the applied prior art references do not teach or suggest such a combination of features.

Regarding Watanabe, Applicants note that Fig. 13 of this reference depicts a receiving end of an optical communication system that includes an optical branch unit 81. As shown in Fig. 13, the optical branch unit 81 branches a light signal received over an optical transmission fiber 34 into a plurality of optical signals, and inputs each of the branched optical signals to an optical frequency discriminator 91-1 to 91-k (see Fig. 13 and col. 11, lines 22-27).

As explained in Watanabe, each branched optical signal input to the optical frequency discriminators 91-1 to 91-k is divided into two channels, thereby causing two optical signals  $I_1$  and  $I_2$  to pass through the optical paths 101 and 102, respectively, so as to delay the optical signal  $I_2$  by a predetermined time with respect to the optical signal  $I_1$  (see Fig. 13 and col. 11, lines 30-34). Subsequently, the two optical signals  $I_1$  and  $I_2$  are mixed in an optical mixer 103, and the mixed signal is converted to an electrical signal by an optical receiver 104 (see Fig. 13 and col. 11, lines 34-37).

In the Office Action, the Examiner takes the position that, in Watanabe, the portion of the optical frequency discriminators 91-1 to 91-k that separates the branched optical signals into two signals (i.e.,  $I_1$  and  $I_2$ ), delays optical signal  $I_2$ , and then combines optical signals  $I_1$  and  $I_2$  via a mixer 103, corresponds to an "interference portion" as recited in the claims (see Office Action at page 2). In addition, Applicants note that the Examiner has also taken the position that the optical receiver 104 within each of the optical frequency discriminators 91-1 to 91-k of Watanabe corresponds to an "optical/electrical converting portion" as recited in the claims.

As noted above, however, claim 62 recites the features of a first optical/electrical converting portion operable to convert the combined optical signal outputted from the

interference portion into an electrical signal; and a second optical/electrical converting portion operable to convert the second optical-modulated signal outputted from the optical branch portion into an electrical signal.

In other words, according to claim 62, while the first optical/electrical converting portion converts a combined optical signal that is output from the interference portion into an electrical signal, the second optical/electrical converting portion does not convert a combined optical signal into an electrical signal, but instead, converts a second optical-modulated signal that is output from the optical branch portion into an electrical signal.

Thus, in Watanabe, because each of the optical frequency discriminators 91-1 to 91-k includes an “interference portion” which separates the optical signal into optical signals  $I_1$  and  $I_2$ , delays signal  $I_2$ , and then combines  $I_1$  and  $I_2$ , it is clear that all of the optical/electrical receiving portions 104 of Watanabe convert a combined signal that was output from an “interference portion” into an electrical signal.

Accordingly, as all of the optical/electrical converting portions 104 of Watanabe convert a combined optical signal output from an “interference portion” into an electrical signal, Applicants respectfully submit that Watanabe does not disclose the combination of a first optical/electrical converting portion operable to convert a combined optical signal outputted from an interference portion into an electrical signal, and a second optical/electrical converting portion operable to convert a second optical-modulated signal outputted from an optical branch portion into an electrical signal, as recited in claim 62.

According to the present invention, by providing the ability to convert the second optical-modulated signal into an electrical signal without using an interference portion, it is

possible to directly obtain an electrical signal in a high-frequency range that is suited for wireless communication (see, e.g., page 79, lines 3-20 of the specification).

In view of the foregoing, Applicants respectfully submit that Watanabe does not disclose, suggest or otherwise render obvious at least the above-noted combination of features recited in claim 62. Further, Applicants respectfully submit that Naito does not cure this deficiency of Watanabe.

Accordingly, Applicants respectfully submit that claim 62 is patentable over the cited prior art, an indication of which is kindly requested. Claims 67, 68, 70-72, 74, 75 and 81 depend from claim 62 and are therefore considered patentable at least by virtue of their dependency.

## II. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may best be resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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Sheet 1 of 1

FORM PTO 1448 (modified)

U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICE

LIST OF REFERENCES CITED BY APPLICANT(S)  
(Use several sheets if necessary)

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U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
DS	AA	5,541,755	7/1996	Noe et al.	—	—	—
DS	AB	4,959,826	9/1990	Smith	—	—	—
DS	AC	5,625,479	4/1997	Suzuki et al.	—	—	—
DS	AD	6,271,950	8/2001	Hansen et al.	—	—	—
DS	AE	5,319,438	6/1994	Kiasaleh	—	—	—
DS	AF	5,289,550	2/1994	Plastow	—	—	—
DS	AG	5,629,792	5/1997	Masaki	—	—	—
DS	AH	6,335,814	1/2002	Fuse et al.	—	—	—
	AI						

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO	
DS	AJ	7-73639	3/1995	JP			abstract	
DS	AK	0 718 989 A2	6/1996	EP				
	AL							
	AM							
	AN							

OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)

AO	K. Kikushima et al., "Optical Super Wide-Band FM Modulation Scheme and Its Application to Multi-Channel AM Video Transmission Systems", IOOC '95, PD2-7, pages 33 and 34
AP	
AQ	

EXAMINER Dalzid Singh

DATE CONSIDERED 08/27/05

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.